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ISH FIRE PREVENTION COMMITTEE.—No. 156.
the Executive.

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THE
NEW YORK FIRE DEPARTMENT
(1911)

A PAPER
BY
THE HON. R. WALDO
Late Fire Commissioner, New York.

WITH TEN ILLUSTRATIONS

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LONDON, 1911

PUBLISHED AT THE OFFICES OF
THE BRITISH FIRE PREVENTION COMMITTEE
(*Founded* 1897—*Incorporated* 1899),
8 WATERLOO PLACE, PALL MALL.

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"RED BOOKS" of the

BRITISH FIRE PREVENTION COMMITTEE.—No. 156.

Edited by the Executive.

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Two Shillings and Sixpence.

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OBJECTS OF THE COMMITTEE.

The main objects of the Committee are:

To direct attention to the urgent need for increased protection of life and property from fire by the adoption of preventive measures.

To use its influence in every direction towards minimizing the possibilities and dangers of fire.

To bring together those scientifically interested in the subject of Fire Prevention.

To arrange periodical meetings for the discussion of practical questions bearing on the same.

To establish a reading-room, library and collections for purposes of research, and for supplying recent and authentic information on the subject of Fire Prevention.

To publish from time to time papers specially prepared for the Committee, together with records, extracts, and translations.

To undertake such independent investigations and tests of materials, methods and appliances as may be considered advisable.

GENERAL
PERIODICALS

The Committee's Reports on Tests with Materials, Methods of Construction, or Appliances are intended solely to state bare facts and occurrences, with tables, diagrams, or illustrations, and they are on no account to be read as expressions of opinion, criticisms, or comparisons.

The Committee is not responsible for the views of individual authors as expressed in Papers or Notes, but only for such observations as are formally issued on behalf of the Executive.

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A 1910 FIRE IN NEW YORK EXTINGUISHED MAINLY BY HIGH PRESSURE SERVICE. *p.* 4.

NOTE

One of the earliest publications of the British Fire Prevention Committee, i.e., Red Book No. 5, dealt with the New York Fire Brigade as it was in 1897. For a full decade after that year little progress appears to have been made in the development of that force, and, although it increased in numbers, it can scarcely be said to have increased either in efficiency or to have been systematically modernized during that period.

In 1896 the National Board of Fire Underwriters of the United States dealt comprehensively with the fire risks of the City of New York in their Report No. 47, and the state of affairs brought to light was certainly not very flattering to the Brigade, a view which, by the bye, was borne out by a report issued in Germany after a visit to America by two of the most eminent Continental Fire Chiefs. Both reports, i.e. that of the Fire Underwriters and that of the German Fire Chiefs, make regrettable reading, but reference to these criticisms are now unnecessary when the remedy is in sight.

Some three years back, probably resulting from the criticism above referred to, there fortunately appeared to be a new tendency in the direction of modernization, and with the arrival of the Hon. R. Waldo as Fire Commissioner the improvements made rapid strides, in fact to such an extent that this Committee deemed it of interest to its members and subscribers to request Mr Waldo to give some particulars of the Brigade in its present form. This he has done, and the data presented claim close attention.

From these data, however, New York appears to be still behind the leading cities of Europe in matters of motor appliances and in mechanically raised long ladders, and in many directions the equipment and the general arrangements must still seem far from perfect. But the spirit of progress that has been so conspicuous since the arrival of the author of the data here presented makes for good, and there was not the least reason to fear that if he continued in office the New York Fire Department would some five years hence have again been able to claim that reputation for being relatively "up to date" which it had in the eighties.

Unfortunately, however, Mr Waldo's ability has lately taken him to a higher office, i.e. to the direction of the Police.

It is to be hoped that what the Hon. R. Waldo has done for the New York fire service will live and that his successor will be inspired by the same spirit of modernization, probity and efficiency with which their great reformer's name is so favourably associated.

As to any point in the following pages that requires special remark, probably the outstanding feature is that so important a brigade is not officered by men of high general education, having technical attainments of first order. The Universities, the Technical Colleges, the Navy and the Army of the United States are producing true American gentlemen of marked ability, high ideals and excellent physical qualities. It is the highly educated leader of men of good technical training who is required for the superior positions of the executive force of all first class fire departments, and there appears to be no reason why the requirements of New York should be exceptional in this direction. For the class of leader essential in a modern fire brigade the mastering of the practice of fire fighting offers no great difficulty, and the fourth class fireman should as a rule be amply rewarded if he can reach the ranks of battalion chief, i.e., the rank of a London superintendent or Continental warrant officer. London has five superior officers, i.e., commissioned officers in the naval or military sense—and requires more—Vienna 8, Berlin 24, Paris 48, and New York *nil*.

As a matter of fact New York requires at least a dozen superior officers as chief, deputy chiefs and divisional and assistant divisional officers and their advent would immeasurably raise the tone and efficiency of the force, as also bring about further economies in its administration.

What the Hon. R. Waldo has done as Fire Commissioner is work that should largely have been done as a matter of course by the superior officers had they existed during the many years when the force marked time in all but an increase of its numbers. The initiation of his excellent economies, his scholastic and fire preventive policy could scarcely be expected from the fine fellows, who whilst advancing from the position of artisans to chiefs naturally as a rule retain the characteristics of those who have not been favoured by the surroundings, the ideals or the education which do so much to form the character of a superior officer.

The idea which unfortunately still pertains in most provincial centres at home that the fire department can be commanded by a glorified foreman artisan is a wrong one. It is entirely out of place to-day where science, mechanics and fire prevention play so important a role in every fire protective scheme. The sooner that idea is dropped the better for the Empire that has had to suffer so much from placing the management of fire brigades in unsuitable hands. There have, of course, been some few noteworthy cases where quite exceptional men have risen from the ranks to obtain, for a time, a position that would place them in the category of superior officers, but somehow only one or two of them have, so far, to my knowledge, quite reached that goal and then permanently retained their new status. The successful direction of a fire brigade requires professional men of the highest calibre, and it should always be remembered that the success of a fire chief depends quite as much upon his efforts to promote fire prevention as upon his administrative capacity and his generalship at actual outbreaks.

EDWIN O. SACHS.

8, *Waterloo Place, London, S.W.*
1911.

The New York Fire Department

(1911)

INTRODUCTION.

The publication of the British Fire Prevention Committee, No. 5, issued in 1897, described the New York Fire Department as of the year 1897. The numerical increase since that year has brought the Department from 1,146 officers and men to 4,324; from 61 land engine companies to 174; from 3 fireboat companies to 10 fireboat companies; from 22 hook and ladder companies to 76 hook and ladder companies. The Chief Officers have been increased from 14 battalion chiefs to 42, and from 3 deputy chiefs to 13.

This increase in personnel and equipment was in part the natural augmentation due to the growth of the city, and in part due to the inclusion of the former counties of Kings, Queens, and Richmond into the Greater City of New York.

From 1897 to 1909 the organization and the methods of the Fire Department remained in general as described by the late Chief Bonner in the Committee's publication. In 1908 a system of high pressure water supply for fire department uses was introduced.

THE NEW HIGH PRESSURE SYSTEM.

The high pressure system will in time revolutionize fire fighting and will cause the City of New York to lose one of its most spectacular and ever-interesting sights, that is, the fire engine in operation belching forth sparks and smoke and the noisy hum of the pumps in operation.

At present the City is equipped with five high pressure stations, two of them being located in the Borough of Manhattan, two in the Borough of Brooklyn, and the fifth, while in Brooklyn, is located at Coney Island, the city's great amusement resort, which on June 3, 1911, suffered a second disastrous fire.

In both Boroughs of Manhattan and Brooklyn the high pressure system is now in service in the business sections, where are located our large office buildings, factories, etc., and in which sections the high pressure service has been of the greatest benefit.

Some of the main features of the service are: inexhaustible supply of water; there are no long stretches of hose necessary as is the case where there is no high pressure service, for several companies arriving on the first alarm can attach their hose to the same hydrant and use very little hose, and this is quite a factor, when it is remembered that the longer the stretch of hose, the more friction and less nozzle velocity or pressure received. Another important point is the fact that where two steam engines are working on the same water main, should one of these engines have more powerful pumps than the other, which is often the case, the more powerful engine draws all the water from the mains, leaving the other engine on the same main practically useless, and this is most important when it is remembered that firemen are in a burning building holding the hose line from an engine which is not giving them water, and they must retreat and the fire burns without hindrance; but with the high pressure service this is obviated; there is water enough for all.

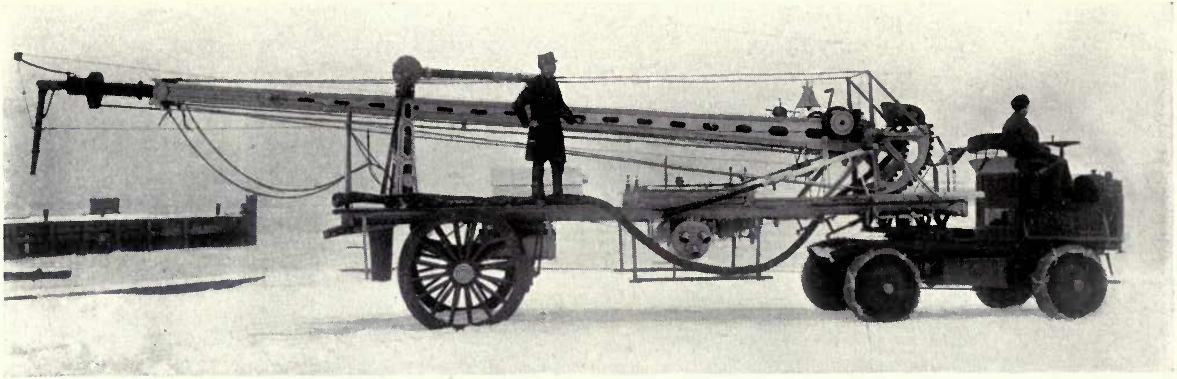
The moment an alarm of fire is transmitted by the fire alarm telegraph and is received by companies of the Department, it is also received in the pumping stations of the high pressure system, and immediately the engineers in that station, should the alarm be within the high pressure district, start their electric pumps working at 125 lbs. (*8.500 atmos.*) pressure, so that one minute after the alarm has been transmitted, the entire water mains leading from the pumping stations are charged. Should the fire be of large proportions, and the Chief Officer in charge requires a higher pressure of water, he immediately directs by telephone (telephones are located throughout the entire high pressure districts, being attached to sides of buildings), that he requires more pressure and the pumping stations immediately increase the pressure, which can be given up to 400 lbs. (*27.200 atmos.*). The stream given from a high pressure hydrant is not ragged or broken, but a solid stream with great force; where high pressure is used, the hose lines are fastened to what are known as high pressure pipe holders and can be operated by one man.

At a fire where high pressure is used entirely, the absence of the hum of the engines is very noticeable, but of great benefit to the Chief and officers in charge of the fire, as their orders and directions can be heard and immediately carried out.

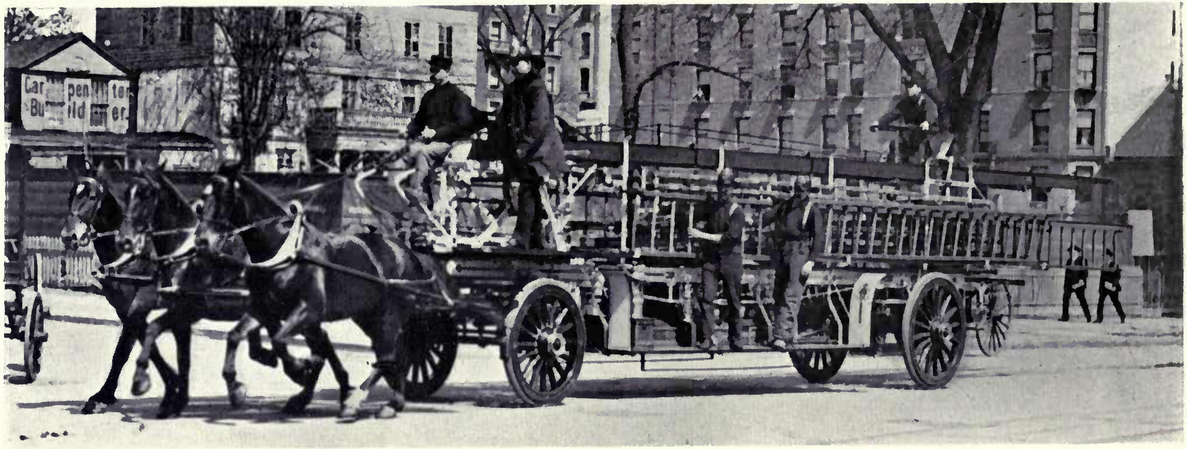
The stations themselves are modern " fire-proof " structures, one story high, containing five units or pumps, operated by electric motors, each pump having a capacity of 3,000 gallons (*13630l.*) per minute or a capacity of 15,000 gallons (*68152l.*) with every unit in operation at 300 lbs. (*20.400 atmos.*) pressure. These stations are so constructed that three additional units can be installed at any time giving the station a capacity of 24,000 gallons (*190043l.*) per minute. The fresh water is received through two mains 24 inches (*0.610m.*) in diameter, and forced through a gridiron system of piping, varying in size from 24 inches to 12 inches (*0.610* to *0.305m.*) according to location, and connected with 8-in. (*0.203m.*) mains to each hydrant, which hydrants have four outlets: in some cases three 3-in. (*0.076m.*) and one 4½-in. (*0.012m.*) outlets, and some hydrants have four 3-in. (*0.076m.*) outlets.

Provision is also made to use salt water received through two 30-in. (*0.762m.*) mains.

In case of a breakdown in the system, which is very unlikely as both stations are connected, it is so arranged that the fireboats would pump water from the river into a hydrant near the river



TEN-TON MOTOR DRIVEN WATER TOWER. HEIGHT WHEN EXTENDED, 70 FEET. SPEED, 16 MILES AN HOUR.



THREE-HORSED HOOK AND LADDER TRUCK, CARRYING 85-FEET EXTENSION LADDER.
(*Note rear steering wheel.*)

p. 9.

front, and forced through the street mains in the same manner as would be done by the station itself.

In addition all stations are so equipped that in case the current operating the motors should fail, the electric current of the large electric plants, street car railways and large commercial houses can immediately supply current to operate the pumps, and this is compulsory by law, the electric power company being under heavy penalty for every minute they fail to supply power.

RECENT REORGANIZATION OF THE DEPARTMENT.

Within the past eighteen months the Fire Department has undergone a reorganization in its administrative, executive and technical branches. Many changes have already taken effect, and others are in progress, so that within a year it is anticipated that the Fire Department will be established on modern lines.

NEW BUREAU OF REPAIRS AND SUPPLIES.

The Bureau of Repairs and Supplies was established by the present Fire Commissioner immediately on taking office, January 1, 1910. The Bureau is in charge of a Deputy Chief of Department, and is sub-divided into Divisions, known as:

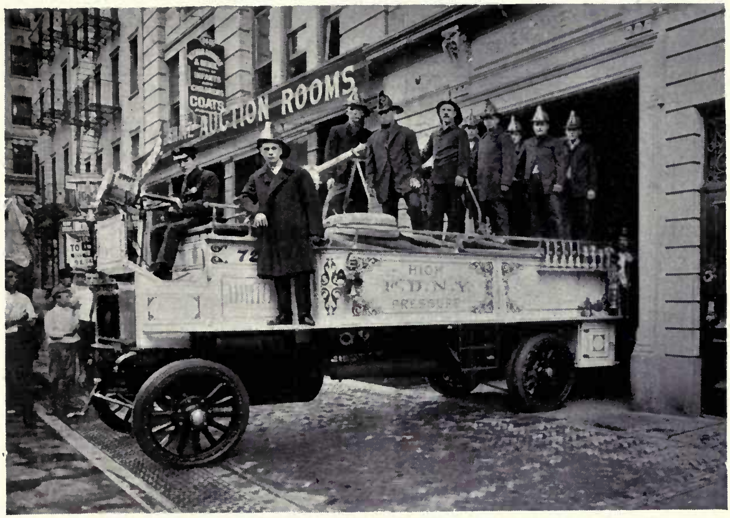
1. Purchasing Division.
2. Division of Requisition and Property Accountability.
3. Division of Apparatus.
4. Division of Buildings.
5. Division of Horses.
6. Division of Stores.

These Divisions are in charge of Chiefs of Battalions, Foremen and Civilian employees having the training necessary to fit them for the supervision of the various divisions.

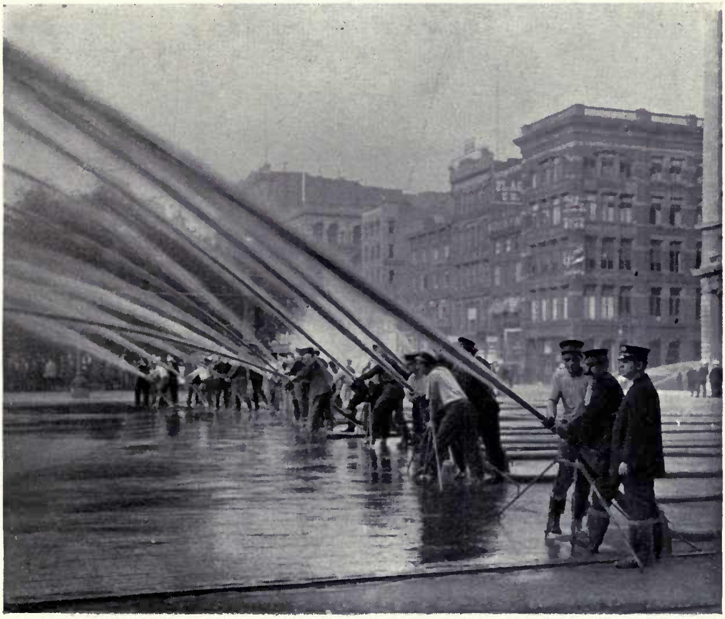
1. ***Purchasing Divisions.***—In charge of a Chief of Battalion, does all the purchasing of the Department, no matter how small or large, issues all orders for materials and keeps a complete record of all transactions, advertising for bids, etc., etc.

2. ***Division of Requisition and Property Accountability.***—In charge of an Examiner of Accounts, also with a branch in the Borough of Brooklyn and Queens, keeps a complete record of all property in the Boroughs of Brooklyn and Queens, in fact the entire record of all the property of the Department is kept in this Division, and receives all requisitions for supplies, making a record of same, and twice a year receives from every company and Bureau in the Department, a Return of Property, which is verified and which makes it possible for the Commissioner to ascertain just what property may be in any company or Bureau of the Department, the records kept in this Division give the desired information.

3. ***Division of Apparatus.***—In charge of a Battalion Chief, also having a branch in Brooklyn and Queens. This Division



HIGH-PRESSURE MOTOR DRIVEN HOSE WAGON AND CREW.
(*Carries* 2000 *ft. of Hose and Appliances.*)



TEST OF STREAMS OPERATED BY THE HIGH PRESSURE SYSTEM.

operates two large repair shops, equipped with the most modern machinery, etc., and employs 149 men. All repairs, etc., from emergency to the entire rebuilding of an apparatus, can be made in these shops. In this Division is kept a complete description of all apparatus, hose, etc.

4. ***Division of Buildings.***—In charge of a Foreman of the Department, employing building inspectors, architects, draughtsmen, etc. Also has a branch in the Boroughs of Brooklyn and Queens. This Division has charge of all buildings of the Department, and the making of such repairs, additions and alterations as are necessary.

5. ***Division of Horses.***—In charge of a Foreman of the Department, having also a branch in the Boroughs of Brooklyn and Queens. This Division has charge of the horses of the Department, which at present number 1,515. Supervises the shoeing of these horses and employs two veterinarians. This Division keeps a record of the forage supplied to and consumed by each company, which is sent in monthly by each company commander on a card for that purpose, which enables this Division at any time to ascertain just what quantity of forage is on hand, and in this way there is little or no chance for waste.

6. ***Division of Stores.***—In charge of a Storekeeper. Issues all supplies to keep companies and Bureaus in proper condition. This is done regularly four times a year, each company and Bureau forwarding a requisition at these times for such supplies as will be necessary to maintain their companies or Bureaus for the ensuing three months.

The Bureau of Repairs and Supplies has concentrated under one head eleven separate and distinct branches of the Department, whose operations are conducted through the head of this Bureau, which in a Department such as the Fire Department eliminates confusion and loss of time in looking up records, etc.

PRINTING OFFICE AND "DAILY ORDERS."

There has also been established under the direct supervision of the Chief in charge of the Bureau of Repairs and Supplies, a printing office, wherein a modern press and equipment has been installed. This printing establishment prints a daily order, one of which is forwarded to every company and Bureau, whereon appears all records of the Departments such as appointments, transfers, promotions and any information that has an official bearing on the work of the Department. These orders are known as "General Orders," "Special Orders" and "Circulars," and are kept in loose leaf binders in each company or Bureau for reference.

HORSE SHOEING.

It has been the custom of the Department to shoe their horses by having the work done by horse-shoers nearest to the company requiring the work done. During the last three months of 1910 this item alone amounted to $19,160.18 (*£3,840*), and to avoid this excessive outlay of money the Commissioner had ten portable horse-shoeing shops constructed built on wagons which go from company to company shoeing horses, each wagon being in charge of a horse-shoer and his helper. The cost of these wagons together with the salaries paid to the help (which is more than they would receive if working for any outside concern) together with the cost of the horse-shoeing supplies, after figuring a certain percentage for depreciation of the equipment was $9,409.56,* showing a saving of nearly $10,000† for the first three months of 1911 on this item alone.

THREE-HORSED STEAM FIRE ENGINE.

ECONOMY.

Through the organization of the Bureau of Repairs and Supplies the Department has been able to return to the City Treasury $103,990.11‡ the first year of the present administration.

This economy has been effected by the institution of proper accountability of labour and supplies, close supervision of requisitions and standardization of supplies purchased.

*At 5 dollars equal £1 about £1882. †£2000. ‡£20,798.

FIRE COLLEGE.

The present administration has also organized a Fire College for the purpose of giving the younger officers and men the benefit of instruction by the older and more experienced officers. It is described in detail in the following General Order No. 72 of December 28, 1910:

GENERAL ORGANIZATION.

The Fire College of the Fire Department of the City of New York is hereby established to take effect January 1, 1911. The purpose of this College is to disseminate knowledge of fire fighting, to establish and maintain the highest professional standards, and afford to men starting in the profession of fire fighting the advantage of experience of men who have devoted their lives to this profession.

Instruction in the various courses will be limited to what must be known to practical firemen in order to efficiently perform their duties. Where possible, courses will be limited to practical work.

This College shall be composed of the following schools:

1. Officers' School.
2. Engineers' School.
3. Probationary Firemen's School.
4. Company School.

The Fire College shall maintain courses of instruction in the following subjects:

General fire fighting.
Use of apparatus and tools.
Engines and Boilers.
Use of high pressure systems.
Marine Fires.
Care of horses.
Care of hose.
Sapping and mining.
High tension electric currents.
Combustibles and explosives.
Gasolene motor engineering.
Fire alarm telegraphs, including auxiliary systems.
Auxiliary fire appliances.
First aid to the injured.
Discipline and administration.

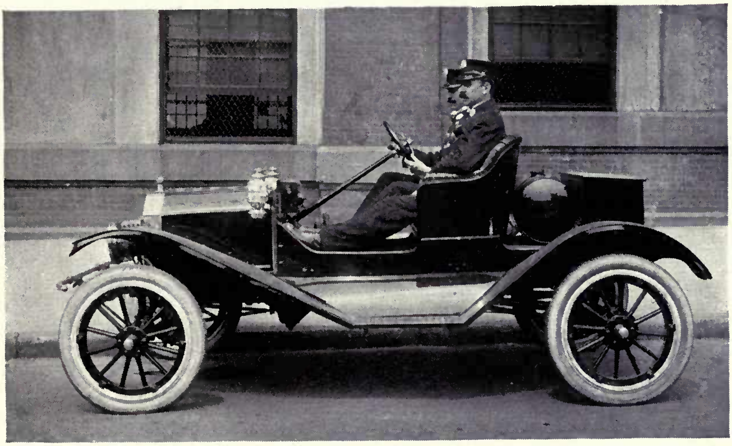
The Fire College shall be administered by the Fire College Board. The Chief of Department shall be President thereof, ex-officio. The Board shall be subject to the control of the Fire Commissioner.

This Board shall be charged with the administration and instruction of the several schools.

At the conclusion of courses of instruction, they shall hold examinations and report to the Commissioner the names of all members of the department who have successfully completed the course to the satisfaction of the Board.

They shall make to the Commissioner from time to time such recommendations as, in their opinion, may add to the efficiency of the Department and of the College.

They shall prepare a manual of Fire Fighting covering all of the subjects in which instruction is given.



DEPUTY CHIEF'S SERVICE MOTOR TRAP.
(*Speed* 30 *Miles an Hour.*)

1. ***Officers' School.***—All officers of the Department, except members of the Fire College, and all engineers and firemen who are eligible for promotion to the rank of Assistant Foremen, shall be required to attend the Officers' School under such rules and regulations as may from time to time be established by the Board.

In so far as practicable, no officers or engineers or firemen will be promoted unless they have successfully concluded this course of instruction to the satisfaction of the Board.

Instruction in this School will be given by section. Sections will consist of twenty-five members, and will be announced from time to time in Special Orders of the Department. Sections will be required to attend three times a week from 10 a.m. to 1 p.m. for a period of six weeks. Two sections will be under instruction at the same time on alternate days. On sections completing the course, new sections will be formed.

2. ***Engineers' School.***—All Engineers will be required to attend this school. Firemen of the first and second grades upon their own application approved by the Board will be granted permission to attend this school. In so far as practicable, no fireman will be promoted to the grade of Engineer unless he has successfully completed this course to the satisfaction of the Board.

The course of instruction in this school will be limited to an extended course in Engines and Boilers and Gasolene Motor Engineering.

3. ***Probationary Fireman's School.***—All probationary firemen will be required to attend this school for a period of at least thirty days upon their appointment as probationary firemen. The instruction in this school shall be limited to practical instruction in the use of tools, scaling ladders and other life saving appliances, and elementary instruction in First Aid to the Injured.

No probationary fireman will be appointed who has not completed this course to the satisfaction of the Board.

4. ***Company School.***—All companies will be required to attend this school, with their entire complement of officers and men, at such time and place as the Board may from time to time direct. The course of instruction in this school will include the use of apparatus and tools, and for Engine Companies will also include engines and boilers.

DETAIL FOR FIRE COLLEGE BOARD.

Chief of Department, President, ex-officio, Fire College Board.

A Deputy Chief of Department in charge of Officers' School. In charge of Engineers' School. Instructor in General Fire Fighting. Instructor in Marine Fires.

A Deputy Chief of Department, Instructor in Discipline and Administration. Instructor in Gasolene Motor Engineering. Assistant Instructor in General Fire Fighting.

A Battalion Chief, Instructor in Use of High Pressure Systems. Instructor in High Tension Electric Currents. Assistant Instructor in General Fire Fighting.

A Battalion Chief, Instructor in Combustibles and Explosives. Instructor in Sapping and Mining. Assistant Instructor in General Fire Fighting.

A Battalion Chief, in charge of Company School. In charge of Probationary Firemen's School. Instructor in Use of Tools and Apparatus.

A Foreman of Department, Instructor in care of Hose. Assistant Instructor in General Fire Fighting.

A Foreman of Department, Instructor in Auxiliary Fire Appliances.

A Foreman of Department, Instructor in Engines and Boilers.

Chief Medical Officer, Instructor in First Aid to the Injured.

LIBRARY OF THE UNIVERSITY OF CALIFORNIA

Electrical Engineer, Instructor in Fire Alarm Telegraph including Auxiliary Systems.

Veterinary Surgeon, Instructor in Care of Horses.

Every member of the Fire College Board has had 20 years or more experience fighting fires.

PRINCIPLES OF INSTRUCTION.

From the General Order establishing this Fire College it will be seen that the course of instruction covers various subjects, especially adapted for the benefit of members of the uniformed force. The sections under instruction on entering the College are shown the tools of all branches of the service, and every member of the Department is made familiar with all equipment. The students are instructed in the use of the various appliances, etc., so that every man receives not only a theoretical course of instruction but a practical one. Having become familiar with the tools and uses of same, the students attend lectures given by the faculty of the College. These lectures deal on topics, such as are met with in fighting fires, and are further explained by black-board drawings, etc. These drawings show construction of buildings, and the method that should be used in extinguishing a fire which might occur in certain kinds of buildings. The officers of the Department are instructed in a practical way to place their companies in order to operate successfully at a fire. Having completed these instructions and before being graduated from the College, the students are required to pass an examination, and with this end in view the various arms of the service are used, ladders are used, engines

FIRE DEPARTMENT HORSE-SHOEING WAGON.

put in operation, etc., in fact a student must be familiar with and understand the use of each and every tool, and have gained such knowledge as would fit him to perform duty either in an engine, hook and ladder, fireboat, or hose company, so that it would make little difference to what branch of the service a man might be attached, he would at all times be able to operate with any other branch of the service.

All new members put in thirty days at the school of instruction from 8 a.m. to 4 p.m.,during which time they are climbing ladders, lowering themselves from the roof of an eight-story building with the aid of ropes, jumping into nets, learning to tie various kinds of knots, becoming familiar with signals, and covering the entire work of a member of the uniformed force. Having completed their thirty days' course, these men, who have in addition to attending the school of instruction in the daytime, served with companies to which they were assigned at night, return to their companies for a further period of two months, when a report is forwarded regarding each and every man, and if satisfactory, these men are appointed 4th grade firemen at a salary of $1,000 per annum.*

It is essential also that any member of the uniformed force before being promoted must pass a satisfactory examination in the Fire College.

SELF-PROPELLED APPLIANCES.

The present Administration has also introduced motor propelled apparatus.

APPLIANCES IN USE AND ON ORDER.

At present there are in service 15 automobiles used by senior officers, and one auto-propelled water tower capable of travelling 15 miles per hour, and with a manœuvring capacity equal to the handiest vehicle in the Department.

The value of this factor in crowded and crooked streets is considerable. This apparatus, formerly the slowest, now arrives at the fire more promptly than any horse-drawn apparatus.

Two auto-propelled hook and ladder trucks will be installed in service about August 1, and these trucks will be the first of their kind from the fact that the aerial ladders will be raised or elevated by motor power instead of by hand or spring assist, as at present.

There are also four auto high pressure hose wagons in service, and one regulation 1st size auto hose wagon; these wagons having a speed guaranteed to 30 miles an hour, have proven they can

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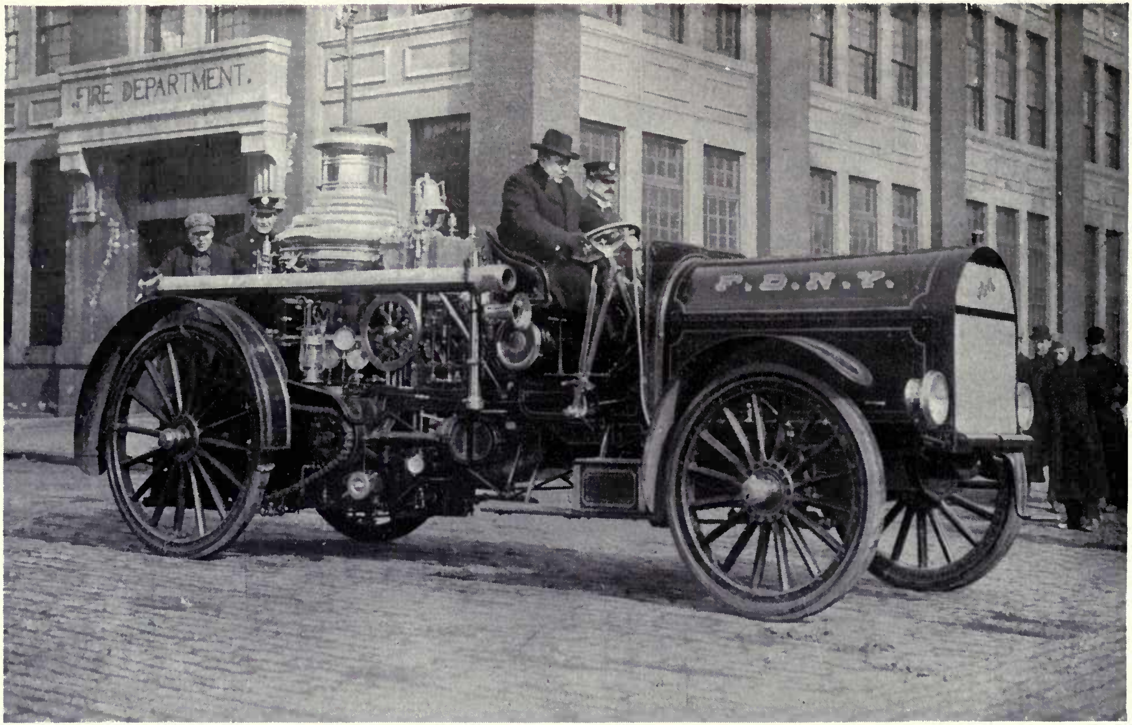
* About £200 p.a.



MOTOR-PROPELLED STEAM PUMPING FIRE ENGINE.
Speed exceeding 45 miles an hour; pumping capacity 750 gallons a minute.
The late Fire Commissioner of the City of New York (The Hon. R. Waldo) at the wheel.

p. 19.

attain a speed of 40 miles, and in addition to carrying all the necessary tools, etc., carry more hose than the old style horse-drawn wagons; they are also equipped with turret-pipes.

There is also one auto-propelled steam fire engine in service; this engine is able to travel at the rate of 46 miles per hour, has a pumping capacity of 700 gallons (*3180.421l.*) per minute, and its weight is eight tons.

In addition to the automobile equipment now in service, the following apparatus has been contracted for and will be delivered before the end of the present year:

2 gasolene-propelled pumping engines.
1 gasolene-propelled pumping engine in combination with hose wagon.
2 large hose wagons for high pressure service.
4 hose wagons.
4 hook and ladder trucks.
1 chassis for water tower.
3 chassis for engines.
6 chassis for hose wagons.

There is also in service with this Department one horse-drawn gasolene pumping engine.

No horses will be purchased in 1911.

PRINCIPLE OF RE-EQUIPMENT.

It has been demonstrated that the use of auto apparatus for fighting fires is more efficient, from more than one standpoint, first, after receipt of the alarm the apparatus can reach the scene of the fire in a shorter space of time than could be done with horse-drawn apparatus; second, on arrival at a fire, at present, there must be left a driver in charge of the horses of each apparatus, which means that where four engine companies, two hook and ladder companies respond, six men are left to watch the horses; third, the cost of forage, shoeing, medical attendance, etc. for horses is considerable, for even while standing in quarters awaiting an alarm the horses must eat, must be shod, etc., while the auto apparatus awaits an alarm in the quarters there is no expense. It has been further demonstrated that to feed, shoe and give the horses proper attention costs about $600.00 (*£120*) per year, while the actual cost of fuel for propelling purposes of an automobile apparatus in this Department in one of the busiest sections of the City for the past year was but $85.00 (*£17*).

Another economical feature of auto apparatus is the fact that it will not be necessary to establish as many new companies as would have to be done were they to be horse-drawn, for the motor apparatus can cover a greater area of space in a short period of time, as it has been demonstrated repeatedly with the auto apparatus in service.

Another feature of auto equipment is that companies now equipped with horse-drawn apparatus, and known as single companies, when equipped with auto apparatus can be made double companies; the space now occupied by stalls for the horses will be removed and this will permit almost every single company in the New York Fire Department, which is now horse-drawn, to be made a double company, so that no matter how large a fire may be, the district from which the apparatus has been withdrawn will still be covered by the second sections of the companies that may be fighting such fires; no district will be entirely without protection or depending upon one or two companies to cover a district while the companies in such district are at a fire.

Valuable land could be returned to the City, and the saving in time and money and improved efficiency of the Department would be considerable.

NEW MODEL FIRE STATIONS.

The rapid growth of New York City necessitates the organization each year of additional fire companies in the outlying districts. Plans and specifications have been prepared for the erection of twenty new fire stations during the year 1911. Eleven of them are for new companies to be organized; nine are to replace buildings which have become so dilapidated through age as to require to be completely built. The new buildings are to be of uniform type. They are to be built of reinforced concrete with metal doors and trimmings. All wood is to be eliminated. This will not only make them absolutely "fireproof," but reduce materially the cost of maintenance through deterioration. The erection of twenty buildings at one time will enable contractors, who so desire, to bid on the entire contract. This plan makes it possible for the City to profit by the saving incident to the erection of a number of buildings requiring the same materials and trimmings which may be purchased at wholesale to a much greater advantage than at retail.

A single company requires a fire station twenty-five feet wide by ninety feet deep. A double company occupies fifty by ninety feet.

FIRE PREVENTIVE SERVICE.

The present Administration takes the position that Fire Prevention should receive the most serious consideration, and for this purpose the Commissioner, in his annual report to the Mayor of the City, has recommended that a Bureau of Fire Prevention be established. It is proposed to organize this Bureau according to the following plan:

1. ***A division of auxiliary fire appliances,*** which shall have charge of the installation of such auxiliary fire appliances and

fire escapes as may be required in various buildings, including automatic sprinklers, standpipes, tanks, pumps, extinguishers, etc. This division should be in charge of a competent engineer.

2. ***A division of combustibles,*** to perform the work now being done by the Bureau of Combustibles. This division to regulate the manufacture, sale, use, storage and transportation of combustibles.

3. ***A division of inspection.***—This division to carry on a systematic inspection of premises to determine whether or not all regulations which may be enacted for the prevention of fires are being observed.

4. ***A bureau of violations,*** under an official with legal training, for the purpose of enforcing regulations in the case of violations.

5. ***A division of the Fire Marshal.***—This division to investigate fires for the purpose of determining whether or not any criminality is attached and bringing offenders to justice.

The number of fires in the City of New York would be materially lessened by the establishment of a bureau of this character with sufficient power to enforce its regulations.

The Department should be granted the necessary power to make and enforce regulations for the prevention of fire and the limiting of the damages therefrom. The Fire Department should have the same power as is now granted to the Health Department to deal with hazardous conditions, especially where life and property are in danger. Under the present law the penalty for non-compliance is a nominal fine which cannot be collected until after many months, and in no way compels compliance with regulations.

In addition to the law organizing such a bureau, it is suggested that much fire waste could be prevented by laws eliminating the further erection of buildings of improper construction.

COST, PAY AND PENSIONS.

The pay of a New York fireman during his first and second years' service is $1,000 (*£200*) per annum, during the third year $1,200 (*£240*) and from the beginning of the fourth year the pay is *$1,400*) (*£280*) per annum; Engineers of Steamer receive $1,600 (*£320*) per annum, and officers of the Department are paid as follows:

Assistant Foremen (or Lieutenants)	$2,100 (*£420*)	per annum.
Foremen (or Captains) . .	$2,500 (*£500*)	,, ,,
Battalion Chiefs . . .	$3,300 (*£660*)	,, ,,
Deputy Chiefs	$4,200 (*£840*)	,, ,,
Chief of Department . .	$7,000 (*£1,400*)	,, ,,

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Under the present law, firemen can retire after twenty years' service on one-half pay. The city also provides a pension fund for widows and dependent minor children of firemen.

The Budget of the Fire Department for the year 1911 is $8,187,459.70 (*£1,637,492*).

FIRST SIZE STEAM PUMPING ENGINE AT WORK.
(*Capacity* 1,000 *Gallons a Minute.*)

APPENDIX.

After the retirement of the Hon. R. Waldo the Committee inquired as to the system of " turn-outs " at present in force for New York, and received the following particulars:—

For administration purposes the Fire Department organization is divided into Boroughs, Divisions, Battalions and Companies. These administration units sometimes coincide with the Field Service units, but this is accidental, for the reason that the necessities of the Fire Department operations require that the Field Service organization be very flexible.

The Field Service units are in fact determined by the degree or extent of the fire, and are prescribed by the alarm regulations in respect to the response of personnel and apparatus to an alarm, for example: in the case of a telephone, oral or other alarm, not sounded by the regular fire alarm telegraph system, what are popularly called " still " alarms, the Field Service unit consists of an engine company, one hook and ladder company, and one chief officer.

In the case of a regular alarm from a street box, which sounds on the fire alarm gongs in all the fire houses, the Field Service unit consists of two Battalion Chiefs, several engine companies—from three to six—and two hook and ladder companies. The number of companies and chief officers vary according to the importance or danger of the district in which the fire is located. In some instances a Deputy Chief and even the Chief of the Department will respond to an ordinary alarm, such as is known as a first alarm; a water tower may also respond, and in the case of fires near the water front, two fire boats may respond.

The Field Service unit thus called out is supplemented, in case a fire requires it, by a second, third, fourth, fifth or a conflagration alarm assignment.

The Field Service units called by these extra alarms usually consist of four or five engine companies, one hook and ladder company, and one Battalion Chief, though the exact response may vary according to the district.

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